

Substances & Mixtures Lab

Pre-Lab Questions:

- 1 - How is a compound different from a molecule?
 MOLECULE + COMPOUND 2+ ATOMS CHEMICALLY JOINED TOGETHER; COMPOUND IS 2+ ATOM OF DIFFERENT TYPES
- 2 - What is a mixture?
 2+ PURE SUBSTANCES MIXED TOGETHER

Part 1 - How do the properties of substances & mixtures compare?

Procedure: Record all data in the data table.

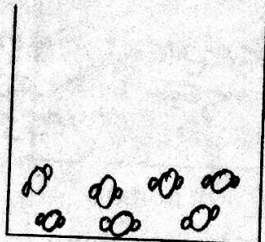
- 1 - Determine which phase (state) the Matter/ Substance is in solid, liquid, or gas (maybe more than one).
- 2 - Determine if each sample is a pure substance or a mixture.
- 3 - If the substance is pure is it a compound or a molecule. Plus if it is a compound identify any molecules that maybe present in the compound.
- 4 - If the substance is a mixture identify it as Homogenous or Heterogeneous.
- 5 - If Homogenous state what could be the solvent and the solute in the solution.
- 6 - If Heterogeneous state if the solution is a colloid or a suspension.
- 7 - Below Chart / top of back page, Please sketch your prediction of what you think the configuration of the solutions' atoms look like. (No Wrong answers, just try, think of its phase/ state)!

Data Table - Physical Properties

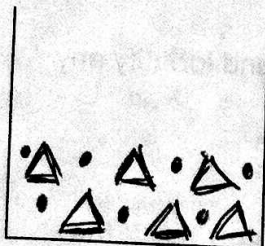
Sample	Phase State Of Matter	Pure Or Mixture	Molecule Or Compound	Homogenous Or Heterogeneous	Solvent: Solute:	Colloid Or Suspension
Station #1 Pure H_2O	L	P	COMPOUND	HOMO	—	—
Station #2 Soup	L/S	M	—	HET	—	SUSPENSION
Station #3 Sand	S	M	—	HET	—	SUSPENSION
Station #4 Sea Water	L	M	—	HOMO	SOLV - H_2O SOLUTE - SALT	—
Station #5 Pepsi	L	M	—	HOMO	SOLV - H_2O SOLUTE - SUGAR	—
Station #6 Rocks/ Gravel	L/S	M	—	HETERO	—	SUSPENSION
Station #7 Coffee and Creamer	L	M	—	HETERO	—	COLLOID
Station #8 Orange Juice (w/ Pulp)	L	M	—	HETERO	—	SUSPENSION
Station #9 Smoke (Concentrated)	G	M	—	HETERO	—	COLLOID

Predictions:

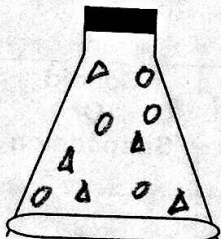
Station #1



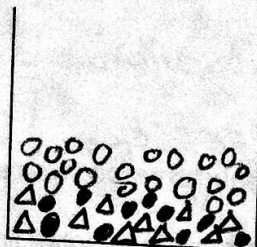
Station #5



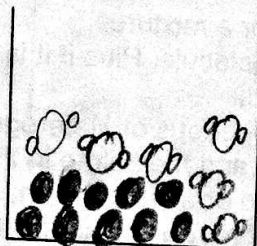
Station #9



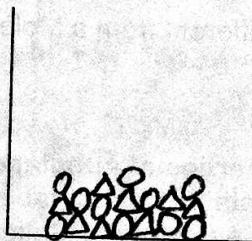
Station #2



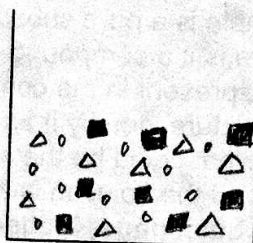
Station #6



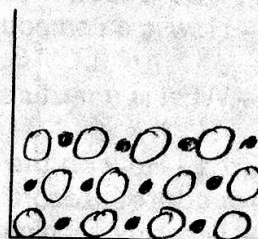
Station #3



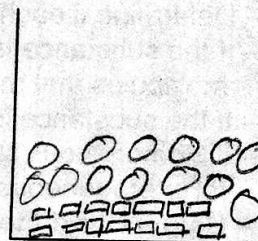
Station #7



Station #4



Station #8



Part 2 – How can mixtures be separated

1 – Explain how you would separate a saltwater mixture.

EVAPORATION – BOIL MIXTURE

2 – Explain how you would separate the orange juice mixture.

STRAIN / FILTER THE PULP

Conclusion:

1 – How can you identify a pure substance from a mixture?

PURE SUBSTANCES ARE MADE OF ONLY 1 TYPE OF ATOM OR MOLECULE – MIXTURES HAVE DIFFERENT PARTS THAT CAN BE SEPARATED USING PHYSICAL MEANS

2 – How can you identify a Homogenous mixture from a heterogeneous mixture?

HOMO – THE SAME THROUGHOUT – PASS LIGHT

HETERO – VISIBLY DIFFERENT PARTS – SCATTER / BLOCK LIGHT

3 – I did not have you calculate the Density of any of your samples. Briefly explain how or what materials you would have needed for me to provide for you to complete this task for the following samples: ROCKS IN WATER

Station #6:

GRAD CYCINDER – USE H₂O DISPLACEMENT TO FIND ROCK VOLUME

BALANCE – FIND MASS OF ROCKS

$$d = \frac{M}{V}$$

Station #4: (Hard Question)

SALT WATER

GRAD CYLINDER – USE TO MEASURE VOLUME OF H₂O

BALANCE – FIND MASS OF A SPECIFIC AMOUNT OF SALT WATER

$$d = \frac{M}{V}$$